S1D13T03 EPD Timing Controller

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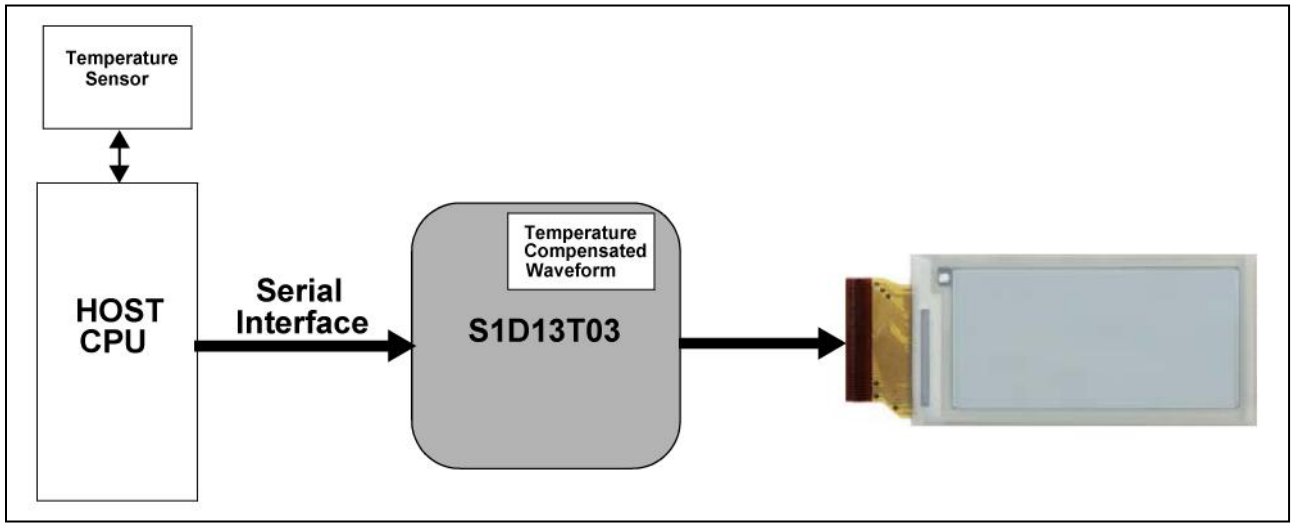
EPSON's S1D13T03 EPD timing controller provides a low cost, quick to market solution for a range of Pervasive Displays' small EPD panels. The S1D13T03 handles all heavy EPD timing related driving requirements. The S1D13T03 is designed to operate with the temperature compensated waveform specification provided by Pervasive Displays for both V110 and V220 type panels. In addition, display update flexibility is provided in the form of partial and full updates to the entire display or just a selected area. The S1D13T03 features an SPI serial host interface with a fully defined command set, making image transfer and display quick and easy. The S1D13T03 only requires a few external capacitors and a diode to be fully operational. In addition to the already low power consumption during active display updates, there is an ultra-low power sleep mode for use during idle periods.

■ Features

- **Host Interface**
  - Internal Oscillator running at 14MHz
  - Serial Host interface:
    - 4-wire standard SPI interface (SCK, NCS, SDI, SDO)
    - 1-wire HRDY busy signal (Configurable for Open-drain operation).
    - Optional Sleep Mode implementation
      - 1-wire Wakeup signal wire
      - 1-wire Sleep status.
- **Power**
  - Single Voltage input, 3.0V ~ 3.3V
  - Built-in regulator for Core VDD
- **Power Modes**
  - Run Mode
  - Low power operation for display update operation
  - Sleep Mode
  - Ultra low power mode for temporary idle control from Host system.
  - Resume is triggered by Wakeup pin.
- **Package**
  - TQFP13 64-Pin (10mm x 10mm)
- **EPD Panel Support**
  - Pervasive Display 1.44", 2" and 2.7" panels.
  - Pervasive Display Low power 1bpp temperature compensated Waveform[*1]
    - V110 and V220 waveform support configurable.
  - Hardware Rotation Support:
    - Supports: 0° and 180° rotation for ease of panel placement on customer design.
- **Display Update Modes Supported**
  - Full Update – performs updates on the full displays
  - Partial Update – performs updates on changed pixels only (full display is scanned).
  - Area Update – in addition to Full and Partial Updates, performs updates only on the window targeted by start position and window size.
- **Host Image Loading**
  - Supports 1bpp full image loading
  - Supports area window image loading.

[*1] The S1D13T03 has capabilities to achieve "Waveform specification" that PDI defines and provides.

■ Block Diagram



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